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Outcomes and Evidence-Based Medicine

We are in the midst of an outcomes movement in medicine. The outcomes movement values statistical probability over all other forms of knowledge. It claims that the physician’s experience contributes little to medical knowledge. The outcomes movement states that probability studies are the best evidence of what works in medicine and that direct application of research by individual physicians will result in better medical practice. Outcomes also include efficacy and effectiveness.

The purpose of the outcomes movement is to purge intuition, unsystematic clinical experience, and physiologic rationale and establish evidence-based medicine (EBM).

EBM follows these steps:
- The physician defines clinical problems reflecting the research literature.
- The physician searches the literature for the best research on the problem defined and appraises it.
- The physician determines the applicability of the best evidence to an individual patient.


Objective Structured Assessment of Technical Skills (OSATS)

Methods used to assess technical skill must be reliable and valid. Faculty should not rely mainly on the subjective rating of a preceptor. Martin et al report that the use of an animal model employing live pigs and the use of bench model simulations of surgical tasks are equivalent as test formats. Tasks selected for a six station live animal model included excision of a skin lesion, hand-sewn bowel anastomosis, stapled bowel anastomosis, T-tube insertion, abdominal wall closure, and control of inferior vena cava hemorrhage. Bench models simulating the procedures were con

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Increasing attention is now being focused on palliative care in the hospice and home setting. However, about 50% of deaths occur in the acute care hospital. The hospital also is the site of death for the homeless, other financially compromised individuals, and the socially compromised elderly. At the 1997 National Conference on Medical Education for Care Near the End of Life, it was concluded that the hospital provides an opportunity for students and residents to gain needed experience in disease recognition and management along with attitudes, knowledge and skills to provide end-of-life care.

Among the recommendations derived from the conference were:

- End-of-life-care should be integrated into all facets of medical education.
- Faculty should support the concept that dying is a normal part of the life cycle and convey that it is a privilege to attend patients and families during this difficult time.
- Attention should be given to physical, psychological, and spiritual symptoms including an awareness of cultural backgrounds and the use of communication skills, bioethical principles that maintain the patient's autonomy, and physician's professionalism.
- Physicians should advocate the importance of the interdisciplinary team to meet diverse medical, social, psychological and existential issues of the patient and family.


Exponential change in medical education is forecasted over the next 20 years in a commentary by Kenneth V. Iserson, Director of Bioethics and Professor of Surgery at the University of Arizona. Computer simulations that exactly mimic patient and tissue response will be available as will the ability to prove that medical students are competent in basic clinical procedures. Residents also will be able to practice advanced clinical techniques before performing them on patients. Simulations will guarantee trainees' experiences and that they learn while decreasing patient danger and discomfort. Activities like OSCE's (objective structured clinical examination) will become individualized and rigorous, allowing those who achieve competency fast to progress more rapidly through medical school and residency. According to Iserson, licensure and board certification will be based on proven competency rather than the amount of time spent in a program.


A detailed task-specific check-list, 7 item global rating scale, and pass/fail scoring system was used. Surgical assistants consisting of surgical nurses or clinical clerks were provided for each procedure except for the excision of the skin lesion. The results of the live animal and bench model format were compared and found to be equivalent.

This objective structured assessment of technical skills (OSATS) is an outcome measure of technical skills in surgical trainees but it is not designed to be a predictor of surgical skill for residents before entering training.

Women in Medical Schools and Residencies

Between 1922 and 1999 the proportion of women in U.S. medical schools rose from about 6% (the unofficially adhered to quota) to 42%. Even in 1972 fewer than 10% of medical school enrollees were women. In 1998 Yale, Harvard, Johns Hopkins, and the University of California at San Francisco medical schools had graduating classes that started with more than 50% women.

Many medical schools offer maternity leave while a few male residents take paternity leave. While more than a third of women physicians in a 1999 Yale University study of 863 living graduates between 1922 and 1999 had children while in residency, as many as 14.2% had children during or before medical school. This is in sharp contrast to the period between 1922 and 1949 when no Yale medical female student had a child during or before medical school and only six had children during residency.

The study recommends that medical schools and residencies need to address this phenomenon by providing child care facilities, flexible time during medical training (five-year programs), paternal leave, spreading a single year of a residency over two years, and not penalizing faculty who are parents (male or female).


Premedical Syndrome and the Plight of a Liberal Arts Education

Brieger concludes that the future of medicine is in good hands when discussing premedical students and the "premedical syndrome". He defines the premedical syndrome as being a set of undesirable attributes that have been widely perceived to characterize some but not all students whose goal is to gain admission to medical school. It is a pejorative term, he continues, implying that such premedical students are overachievers, excessively competitive, cynical, dehumanized, overspecialized, and narrow. However, he still concludes that they will learn about medicine in spite of faculty not because of them. While medical faculties set minimum requirements for medical school admission, they have not taken leadership roles in telling applicants that we really want them to have a liberal arts education. He concludes that the premedical college education should be a golden opportunity for learning and enjoying that experience, cautioning that patients will suffer if the joy goes out of the learning of medicine.

In This Issue... Outcomes and Evidence-based Medicine, OSATS, Premedical Syndrome

Improving In-Training Evaluation Programs

Turnbull et al advocate that objective structured clinical examinations (OSCE) be a part of any system of in-training evaluation (ITE). The general principles for the formulation of ITE include:

- Reliability – reproducibility or consistency of results of an evaluation method.
- Validity – the test measures what is intended to be measured; the closer the examination resembles reality, the more valid it becomes.
- Flexibility – the complete spectrum of clinical practice must be evaluated in multiple circumstances.
- Comprehensiveness – all relevant objectives must be assessed.
- Feasibility – ITE must measure behaviors without additional effort, time, or money.
- Timeliness – observation for evaluation must occur as close as possible to the behavior to assure accuracy of reporting and maximization of student learning.
- Accountability – ITE must be accountable to the program, its objectives, and the community in which the resident works; the program must accept responsibility for their societal contract.
- Relevance – ITE must be seen as important to both faculty and trainees; negative evaluation must lead to remediation and positive evaluations should lead to advancement.


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